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February 17, 1995

Mr. William F. Caton, Secretary  
Federal Communications Commission  
1919 M Street NW - Room 222  
Washington, D.C. 20554

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**FEB 17 1995**

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY

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Dear Mr. Caton:

Attached is a sensitivity analysis prepared for USTA by Christensen Associates on the data correction items for the Christensen LEC TFP study update filed by USTA on January 20, 1995, in this proceeding. A comparison of Attachment A, the results of the TFP study filed by USTA in its comments on May 9, 1994, to each of the individual analysis of the data corrections (Attachments B -F) and to the revised study results (Attachment G) clearly shows the minor impact of the changes.

Frank McKennedy, USTA, met with Mark Uretsky of the Common Carrier Bureau, and Anthony Bush and Alexander Belinfante of the Tariff Division to deliver this analysis on Friday, February 17, 1995.

An original and two copies of this ex parte notice, the attachments and a machine readable disk are being filed in the Office of the Secretary on February 17, 1995. Please include this notice and attached material in the public record of these proceedings.

Respectfully Submitted

*Mary McDermott*

Mary McDermott  
Vice President - Legal and  
Regulatory Affairs

cc: Mark Uretsky  
Anthony Bush  
Alexander Belinfante

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February 16, 1995

Attached are the results of the sensitivity analysis on the data correction items for the Christensen LEC TFP study documented in our letter of January 18, 1995. The following table demonstrates that the data corrections, incrementally and in total, have only minor effects on LEC TFP growth, output growth, input growth, and the LEC-U.S. economy TFP growth differential. Moreover, given that the majority of these data corrections have resulted in data that are consistent with officially reported data, we would not expect to see such corrections on a going-forward basis.

<u>Attachment</u>	<u>1984-1992 LEC TFP Growth</u>	<u>1984-1992 LEC Output Growth</u>	<u>1984-1992 LEC Input Growth</u>	<u>1987-1992 Five-Year TFP Growth Differential**</u>
A	2.6%	3.5%	0.9%	2.6%
B	2.5%	3.5%	1.0%	2.5%
C	2.5%	3.5%	1.0%	2.6%
D	2.5%	3.5%	1.0%	2.6%
E	2.6%	3.5%	0.9%	2.7%
F	2.4%	3.4%	0.9%	2.6%
G	2.4%	3.4%	1.0%	2.5%

\*\*LEC TFP growth less U.S. economy TFP growth

Included in the analysis are: 1984-1992 LEC TFP growth; U.S. economy TFP growth; LEC-U.S. economy TFP growth differential; LEC input price growth, U.S. economy input price growth; and LEC-U.S. economy input price growth differential. Five-year rolling average results are also included. The results are found in Attachments A through F:

- Attachment A: Results of the original study through 1992;
- Attachment B: 1984 gross stock corrections;
- Attachment C: 1984-92 investment corrections and associated materials changes (materials is affected by the capital-to-expense shift);
- Attachment D: 1984-92 TPI corrections;
- Attachment E: 1984-92 labor and materials corrections;
- Attachment F: 1984-92 output corrections; and
- Attachment G: All 1984-1992 corrections incorporated in the 1993 update

## ATTACHMENT A

### Christensen LEC TFP Study – ORIGINAL 1992 RESULTS

	<u>LEC TFP Growth</u>	<u>BLS US MFP Growth</u>	<u>TFP Growth Differential</u>	<u>LEC Input Price Growth</u>	<u>US Economy Input Price Growth</u>	<u>Input Price Growth Differential</u>
1984						
1985	1.9%	0.5%	1.3%	−0.5%	4.0%	−4.5%
1986	2.7%	1.0%	1.7%	−0.4%	3.8%	−4.2%
1987	2.0%	0.1%	1.9%	2.0%	3.1%	−1.1%
1988	1.9%	0.6%	1.3%	0.1%	4.4%	−4.3%
1989	2.3%	−0.3%	2.6%	−5.4%	4.1%	−9.5%
1990	4.5%	−0.3%	4.8%	12.1%	4.2%	7.9%
1991	1.1%	−1.1%	2.2%	3.6%	2.9%	0.7%
1992	4.0%	1.9%	2.1%	−3.2%	5.1%	−8.3%
Avg 84–92	2.6%	0.3%	2.3%	1.1%	4.0%	−2.9%

### FIVE–YEAR ROLLING AVERAGES

<u>5–year avg ending in</u>	<u>LEC TFP Growth</u>	<u>BLS US MFP Growth</u>	<u>TFP Growth Differential</u>	<u>LEC Input Price Growth</u>	<u>US Economy Input Price Growth</u>	<u>Input Price Growth Differential</u>
1989	2.2%	0.4%	1.8%	−0.8%	3.9%	−4.7%
1990	2.7%	0.2%	2.5%	1.7%	3.9%	−2.2%
1991	2.4%	−0.2%	2.6%	2.5%	3.7%	−1.2%
1992	2.8%	0.2%	2.6%	1.4%	4.1%	−2.7%

These are the results of the original 1984–92 Christensen LEC productivity study prior to data revisions.

## ATTACHMENT B

### Christensen LEC TFP Study – CORRECTED 1984 GROSS CAPITAL STOCK

	<u>LEC TFP Growth</u>	<u>BLS US MFP Growth</u>	<u>TFP Growth Differential</u>	<u>LEC Input Price Growth</u>	<u>US Economy Input Price Growth</u>	<u>Input Price Growth Differential</u>
1984						
1985	1.7%	0.5%	1.2%	-0.4%	4.0%	-4.4%
1986	2.6%	1.0%	1.6%	-0.3%	3.8%	-4.1%
1987	1.9%	0.1%	1.8%	2.0%	3.1%	-1.1%
1988	1.8%	0.6%	1.2%	0.1%	4.4%	-4.3%
1989	2.2%	-0.3%	2.5%	-5.3%	4.1%	-9.4%
1990	4.4%	-0.3%	4.7%	12.0%	4.2%	7.8%
1991	1.1%	-1.1%	2.2%	3.6%	2.9%	0.7%
1992	4.0%	1.9%	2.1%	-3.2%	5.1%	-8.3%
Avg 84-92	2.5%	0.3%	2.2%	1.1%	4.0%	-2.9%

### FIVE-YEAR ROLLING AVERAGES

<u>5-year avg ending in</u>	<u>LEC TFP Growth</u>	<u>BLS US MFP Growth</u>	<u>TFP Growth Differential</u>	<u>LEC Input Price Growth</u>	<u>US Economy Input Price Growth</u>	<u>Input Price Growth Differential</u>
1989	2.0%	0.4%	1.7%	-0.8%	3.9%	-4.7%
1990	2.6%	0.2%	2.4%	1.7%	3.9%	-2.2%
1991	2.3%	-0.2%	2.5%	2.5%	3.7%	-1.3%
1992	2.7%	0.2%	2.5%	1.4%	4.1%	-2.7%

Data corrections for 1984 resulted in a 3% decline in total 1984 gross stock. The majority of this change was due to NYNEX, whose 1984 gross stock fell by 35% as a result of 1984 data corrections. NYNEX 1984 gross capital stock represents 15% of the total 1984 gross capital stock for the price cap LECs in the study. For 1984, Bell Atlantic and Southern New England also had small negative revisions to their gross capital stocks, while Ameritech and GTE had small positive corrections.

## ATTACHMENT C

### Christensen LEC TFP Study – CORRECTED INVESTMENT AND ASSOCIATED MATERIALS

	<u>LEC TFP Growth</u>	<u>BLS US MFP Growth</u>	<u>TFP Growth Differential</u>	<u>LEC Input Price Growth</u>	<u>US Economy Input Price Growth</u>	<u>Input Price Growth Differential</u>
1984						
1985	1.7%	0.5%	1.2%	-0.5%	4.0%	-4.5%
1986	2.7%	1.0%	1.7%	-0.4%	3.8%	-4.2%
1987	2.0%	0.1%	1.9%	2.0%	3.1%	-1.1%
1988	1.9%	0.6%	1.3%	0.1%	4.4%	-4.3%
1989	2.3%	-0.3%	2.6%	-5.4%	4.1%	-9.5%
1990	4.6%	-0.3%	4.9%	12.1%	4.2%	7.9%
1991	1.1%	-1.1%	2.2%	3.6%	2.9%	0.7%
1992	4.0%	1.9%	2.1%	-3.2%	5.1%	-8.3%
Avg 84-92	2.5%	0.3%	2.2%	1.0%	4.0%	-2.9%

### FIVE-YEAR ROLLING AVERAGES

<u>5-year avg ending in</u>	<u>LEC TFP Growth</u>	<u>BLS US MFP Growth</u>	<u>TFP Growth Differential</u>	<u>LEC Input Price Growth</u>	<u>US Economy Input Price Growth</u>	<u>Input Price Growth Differential</u>
1989	2.1%	0.4%	1.7%	-0.8%	3.9%	-4.7%
1990	2.7%	0.2%	2.5%	1.7%	3.9%	-2.2%
1991	2.4%	-0.2%	2.6%	2.5%	3.7%	-1.2%
1992	2.8%	0.2%	2.6%	1.4%	4.1%	-2.7%

Overall, total investment over the 1984-92 period changed by 0.9% because of data corrections. The largest change was for GTE, whose total 1984-92 investment increased due to a typographical error in one year. Other companies with very minor corrections (all resulting in small increases in total 1984-92 investment) were Ameritech (change in one number only), Bell Atlantic, Nynex, Pacific Telesis (change in one number only), and Southern New England.

# ATTACHMENT D

## Christensen LEC TFP Study – CORRECTED TPI'S

	<u>LEC TFP Growth</u>	<u>BLS US MFP Growth</u>	<u>TFP Growth Differential</u>	<u>LEC Input Price Growth</u>	<u>US Economy Input Price Growth</u>	<u>Input Price Growth Differential</u>
1984						
1985	1.9%	0.5%	1.4%	-0.4%	4.0%	-4.4%
1986	2.7%	1.0%	1.7%	0.8%	3.8%	-3.0%
1987	1.9%	0.1%	1.8%	1.9%	3.1%	-1.2%
1988	1.9%	0.6%	1.3%	-2.9%	4.4%	-7.3%
1989	2.2%	-0.3%	2.5%	-3.5%	4.1%	-7.6%
1990	4.5%	-0.3%	4.8%	12.0%	4.2%	7.8%
1991	1.1%	-1.1%	2.2%	1.1%	2.9%	-1.8%
1992	4.0%	1.9%	2.1%	4.5%	5.1%	-0.6%
Avg 84-92	2.5%	0.3%	2.2%	1.7%	4.0%	-2.3%

## FIVE-YEAR ROLLING AVERAGES

<u>5-year avg ending in</u>	<u>LEC TFP Growth</u>	<u>BLS US MFP Growth</u>	<u>TFP Growth Differential</u>	<u>LEC Input Price Growth</u>	<u>US Economy Input Price Growth</u>	<u>Input Price Growth Differential</u>
1989	2.1%	0.4%	1.7%	-0.8%	3.9%	-4.7%
1990	2.6%	0.2%	2.4%	1.7%	3.9%	-2.3%
1991	2.3%	-0.2%	2.5%	1.7%	3.7%	-2.0%
1992	2.7%	0.2%	2.6%	2.3%	4.1%	-1.9%

Telephone Plant Index changes were due primarily to the inclusion of GTE in the calculations. GTE TPI's were not available for the original study and were added for the 1993 update. Bell Atlantic provided minor corrections for the 1984-92 period, and Southwestern Bell provided updated TPI's for 1991 and 1992.

## ATTACHMENT E

### Christensen LEC TFP Study – CORRECTED LABOR AND MATERIALS

	<u>LEC TFP Growth</u>	<u>BLS US MFP Growth</u>	<u>TFP Growth Differential</u>	<u>LEC Input Price Growth</u>	<u>US Economy Input Price Growth</u>	<u>Input Price Growth Differential</u>
1984						
1985	1.9%	0.5%	1.3%	–0.0%	4.0%	–4.0%
1986	3.1%	1.0%	2.1%	0.2%	3.8%	–3.6%
1987	2.0%	0.1%	1.9%	1.9%	3.1%	–1.2%
1988	2.0%	0.6%	1.4%	–0.3%	4.4%	–4.7%
1989	2.4%	–0.3%	2.7%	–5.5%	4.1%	–9.6%
1990	4.7%	–0.3%	5.0%	11.9%	4.2%	7.7%
1991	1.2%	–1.1%	2.3%	3.8%	2.9%	0.9%
1992	3.8%	1.9%	1.9%	–3.1%	5.1%	–8.2%
Avg 84–92	2.6%	0.3%	2.3%	1.1%	4.0%	–2.8%

### FIVE–YEAR ROLLING AVERAGES

<u>5–year avg ending in</u>	<u>LEC TFP Growth</u>	<u>BLS US MFP Growth</u>	<u>TFP Growth Differential</u>	<u>LEC Input Price Growth</u>	<u>US Economy Input Price Growth</u>	<u>Input Price Growth Differential</u>
1989	2.3%	0.4%	1.9%	–0.8%	3.9%	–4.6%
1990	2.9%	0.2%	2.6%	1.6%	3.9%	–2.3%
1991	2.5%	–0.2%	2.7%	2.4%	3.7%	–1.4%
1992	2.8%	0.2%	2.7%	1.4%	4.1%	–2.8%

Composite labor expenses were increased by a total of 1.4% over the 1984–1992 period, with a corresponding reduction in materials expense, leaving the sum of labor plus materials expense unchanged. This was due to corrections by US West.

## ATTACHMENT F

### Christensen LEC TFP Study – CORRECTED OUTPUT

	<u>LEC TFP Growth</u>	<u>BLS US MFP Growth</u>	<u>TFP Growth Differential</u>	<u>LEC Input Price Growth</u>	<u>US Economy Input Price Growth</u>	<u>Input Price Growth Differential</u>
1984						
1985	1.3%	0.5%	0.7%	−0.5%	4.0%	−4.5%
1986	2.7%	1.0%	1.7%	−0.4%	3.8%	−4.2%
1987	1.9%	0.1%	1.8%	2.0%	3.1%	−1.1%
1988	2.1%	0.6%	1.6%	0.1%	4.4%	−4.3%
1989	2.0%	−0.3%	2.3%	−5.4%	4.1%	−9.5%
1990	4.5%	−0.3%	4.8%	12.1%	4.2%	7.9%
1991	1.1%	−1.1%	2.3%	3.6%	2.9%	0.7%
1992	3.9%	1.9%	2.0%	−3.2%	5.1%	−8.3%
Avg 84–92	2.4%	0.3%	2.1%	1.1%	4.0%	−2.9%

### FIVE–YEAR ROLLING AVERAGES

<u>5–year avg ending in</u>	<u>LEC TFP Growth</u>	<u>BLS US MFP Growth</u>	<u>TFP Growth Differential</u>	<u>LEC Input Price Growth</u>	<u>US Economy Input Price Growth</u>	<u>Input Price Growth Differential</u>
1989	2.0%	0.4%	1.6%	−0.8%	3.9%	−4.7%
1990	2.7%	0.2%	2.4%	1.7%	3.9%	−2.2%
1991	2.3%	−0.2%	2.5%	2.5%	3.7%	−1.2%
1992	2.7%	0.2%	2.6%	1.4%	4.1%	−2.7%

BellSouth data corrections resulted in total intrastate access billed revenues increasing by 3.8% over the 1984–92 period, and total long distance billed revenues increasing by 2.0% over the 1984–92 period.



# ATTACHMENT G

## Christensen LEC TFP Study – ALL CORRECTIONS

	<u>LEC TFP Growth</u>	<u>BLS US MFP Growth</u>	<u>TFP Growth Differential</u>	<u>LEC Input Price Growth</u>	<u>US Economy Input Price Growth</u>	<u>Input Price Growth Differential</u>
1984						
1985	1.1%	0.5%	0.6%	0.1%	4.0%	–3.9%
1986	2.8%	1.0%	1.8%	1.3%	3.8%	–2.5%
1987	1.8%	0.1%	1.7%	1.7%	3.1%	–1.4%
1988	2.1%	0.6%	1.5%	–3.2%	4.4%	–7.6%
1989	2.0%	–0.3%	2.3%	–3.7%	4.1%	–7.8%
1990	4.6%	–0.3%	4.9%	11.9%	4.2%	7.7%
1991	1.2%	–1.1%	2.3%	1.3%	2.9%	–1.6%
1992	3.5%	1.9%	1.6%	4.4%	5.1%	–0.7%
Avg 84–92	2.4%	0.3%	2.1%	1.7%	4.0%	–2.2%

## FIVE–YEAR ROLLING AVERAGES

<u>5–year avg ending in</u>	<u>LEC TFP Growth</u>	<u>BLS US MFP Growth</u>	<u>TFP Growth Differential</u>	<u>LEC Input Price Growth</u>	<u>US Economy Input Price Growth</u>	<u>Input Price Growth Differential</u>
1989	2.0%	0.4%	1.6%	–0.7%	3.9%	–4.6%
1990	2.7%	0.2%	2.5%	1.6%	3.9%	–2.3%
1991	2.4%	–0.2%	2.6%	1.6%	3.7%	–2.1%
1992	2.7%	0.2%	2.5%	2.2%	4.1%	–2.0%

This table reports the combined impact of all data corrections reported in Attachments B through F, and represents the 1984–92 results of the 1993 update to the Christensen LEC TFP study.